UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,381	08/05/2003	Martin S. Maltz	D/A2290	1288

7590 09/20/2007

ORTIZ & LOPEZ, PLLC
Patent Attorneys
P.O. Box 4484
Albuquerque, NM 87196-4484

EXAMINER	
KAU, STEVEN Y	

ART UNIT	PAPER NUMBER
2625	

MAIL DATE	DELIVERY MODE
09/20/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/635,381	MALTZ ET AL.	
	Examiner	Art Unit	
	Steven Kau	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. This action is responsive to the following communication: an Amendment filed on July 11, 2007.

- Claims 14 and 15 objection is hereby withdrawn from record because claims 16-22 have been re-numbered.
- Applicant's arguments filed on July 11, 2007 have been fully considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-5, 10-16 and 19-22 rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al (Shimizu) (US 7,167,277) in view of Mahy (US 5,832,109).

Regarding **claim 10**, Shimizu discloses a method and apparatus for color data conversion, in that he teaches a system (Figs. 18 & 19, col 28, lines 53-55), comprising: a plurality of color values (such as L255*, a255* & b255* value, corresponding to CMY color data value, col 2, lines 28-59) automatically provided as input to an image processing device (Figs. 5, 7 & 19, col 12, lines 43-67 & col

13, lines 1-4), wherein said image processing device is under a control of a particular dimensional order (processing in three three-dimensional arrays, col 13, lines 51-65); a color sensor (measurement of L*a*b* values, col 11, lines 65-67 & col 12, lines 1-19) for dynamically determining which color value among said plurality of color values has attained a gamut limit (judging whether color value is near the color gamut boundary, col 13, lines 5-37).

Shimizu differs from claim 10, in that he does not teach that a transformation module for automatically reducing said particular dimensional order based on determining which color value among said plurality of color values has attained said gamut limit, thereby providing improved control for colors that are located external to said gamut.

Mahy teaches that a transformation module for automatically reducing said particular dimensional order based on determining which color value among said plurality of color values has attained said gamut limit, thereby providing improved control for colors that are located external to said gamut (Mahy teaches and suggests that a color gamut is completely determined if its boundaries in color space are known, and the color space is 3-dimensional, and as a result the boundaries will be 2-dimensional, col 12, lines 19-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Shimizu to include a transformation module for automatically reducing said particular dimensional order based on determining which color value among said plurality of color values has attained said gamut limit, thereby providing improved control for colors that are located

external to said gamut taught by Mahy because it helps to determine the exact boundaries of the color gamut per lightness level from a set of discrete points (col 4, lines 17-43). Therefore, by combining Shimizu with Mahy, a predictable success of controlling out-of-gamut memory and index color can be achieved.

Regarding **claim 11**, recite identical features as claim 10. Thus, arguments similar to that presented above for claim 10 are also equally applicable to claim 11.

Regarding **claim 12,** Shimizu teaches wherein said particular dimensional order comprises a three-dimensional order (col 12, lines 30-42).

Regarding **claim 13,** Shimizu differs from claim 13, in that he does not teach wherein said transformation module further comprises a transformation module for reducing said three-dimensional order to a two-dimensional order.

Mahy teaches wherein said transformation module further comprises a transformation module for reducing said three-dimensional order to a two-dimensional order (col 12, lines 19-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Shimizu to include a said transformation module further comprises a transformation module for reducing said three-dimensional order to a two-dimensional order taught by Mahy because it helps to determine the exact boundaries of the color gamut per lightness level from a set of discrete points (col 4, lines 17-43). Therefore, by combining Mahy with Shimizu, a predictable success of controlling out-of-gamut memory and index color can be achieved.

Regarding **claim 14,** Shimizu differs from claim 14, in that he does not teaches wherein said transformation module reduces said three-dimensional order to said two-dimensional order in response to determining which colors among said plurality of colors have attained said gamut limit.

Mahy teaches wherein said transformation module reduces said three-dimensional order to said two-dimensional order in response to determining which colors among said plurality of colors have attained said gamut limit (col 12, lines 19-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Shimizu to include a said transformation module reduces said three-dimensional order to said two-dimensional order in response to determining which colors among said plurality of colors have attained said gamut limit taught by Mahy because it helps to determine the exact boundaries of the color gamut per lightness level from a set of discrete points (col 4, lines 17-43). Therefore, by combining Shimizu with Mahy, a predictable success of controlling out-of-gamut memory and index color can be achieved.

Regarding **claim 15,** Shimizu differs from claim 15, in that he does not teaches wherein said transformation module further comprises a transformation module for reducing said three-dimensional order to a one-dimensional order

Mahy teaches wherein said transformation module further comprises a transformation module for reducing said three-dimensional order to a one-dimensional order (Mahy discloses an invention to obtain the color gamut of an

m-ink process in an n-dimensional color space with m>n by the union of the color gamuts of all the boundary n-ink processes of the m-ink process. This implies that for a 2-ink process, there is one-dimensional color space at the gamut boundary (limit), col 6, lines 44-48 & col 8, lines 34-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Shimizu to include a said transformation module further comprises a transformation module for reducing said three-dimensional order to a one-dimensional order taught by Mahy because it helps to determine the exact boundaries of the color gamut per lightness level from a set of discrete points (col 4, lines 17-43). Therefore, by combining Shimizu with Mahy, a predictable success of controlling out-of-gamut memory and index color can be achieved.

Regarding **claim 16,** recite identical features as claim 15. Thus, arguments similar to that presented above for claim 15 are also equally applicable to claim 16.

Regarding **claim 19,** Shimizu teaches a color rendering device associated with said transformation module and wherein said transformation module is integrated with said image processing device (Figs. 18 & 19, col 28, lines 53-55).

Regarding **claim 20,** Shimizu an iterative controller (CPU 20 of Fig. 18 & PC 31 of Fig. 19) whose iterative output is input to said color rendering device (Input/Output Device 25 of Fig. 18 & Printer 32 of Fig. 19), such that said iterative output of said iterative controller reflects a plurality of compensated color values

requiring correction for rendering variations thereof (Fig. 19, col 28, lines 53-67 & col 29, lines 1-23).

Regarding **claim 21,** Shimizu teaches wherein said color rendering device comprises a printer (Fig. 19).

Regarding **claim 22,** Shimizu teaches wherein said color rendering device comprises a photocopy machine (Input/Output Device 25 of Fig. 18).

Regarding **claim 1**, recite identical features as claim 10, except claim 1 is a method claim. Thus, arguments similar to that presented above for claim 10 are also equally applicable to claim 1.

Regarding **claim 2**, recite identical features as claim 11, except claim 2 is a method claim. Thus, arguments similar to that presented above for claim 11 are also equally applicable to claim 2.

Regarding **claim 3**, recite identical features as claim 12, except claim 3 is a method claim. Thus, arguments similar to that presented above for claim 12 are also equally applicable to claim 3.

Regarding **claim 4**, recite identical features as claim 13, except claim 4 is a method claim. Thus, arguments similar to that presented above for claim 13 are also equally applicable to claim 4.

Regarding **claim 5**, recite identical features as claim 15, except claim 5 is a method claim. Thus, arguments similar to that presented above for claim 15 are also equally applicable to claim 5.

4. Claims 6-8 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al (Shimizu) (US 7,167,277) in view of Mahy (US 5,832,109) as applied to claims 1 and 10, and further in view of Holub (US 6,750,992).

Regarding **claims 17 and 18,** Shimizu and Mahy differ from claims 17 and 18, in that both Shimizu and Mahy do not teach wherein said color sensor comprises an offline sensor and an inline sensor.

Holub teaches wherein said color sensor comprises an offline sensor (Fig. 3A, col 11, lines 66-67 & col 12, lines 1-19) and an inline sensor (Fig. 3B, col 15, lines 42-67 & col 16, lines 1-24).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Shimizu and Mahy to include an offline sensor and an inline sensor taught by Holub to improve communication, control and quality of color reproduction (col 3, lines 3-15). Therefore, by combining Shimizu and Mahy with Holub, a predictable success of controlling out-of-gamut memory and index color can be achieved.

Regarding **claims 6, 7 and 8**, recite identical features as claims 17 & 18, except claims 6, 7 and 8 are method claims. Thus, arguments similar to that presented above for claims 17 & 18 are also equally applicable to claims 6, 7 and 8.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al (Shimizu) (US 7,167,277) in view of Mahy (US 5,832,109), and further in view of Holub (US 6,750,992).

Regarding **claim 9**, Shimizu teaches a method, comprising: automatically providing a plurality of color values as input to an image processing device (Figs. 18 & 19, col 28, lines 53-55), wherein said image processing device is under a control of a three-dimensional order (col 12, lines 30-42); color among a plurality of three colors has attained said gamut limit (Fig. 4B, col 6, lines 11-38 & col 10, lines 12-35), wherein said plurality of three colors comprises cyan, magenta, and yellow (Fig. 4B, col 6, lines 11-38 & col 10, lines 12-35).

Shimizu differs from claim 9, in that he does not teach that dynamically determining utilizing a color sensor, and transforming said three-dimensional order, in response to dynamically determining which color value among said plurality of three color values has attained said gamut limit; and automatically reducing said three-dimensional order, thereby providing improved control for colors that are located external to said gamut.

Mahy teaches transforming said three-dimensional order, in response to dynamically determining which color value among said plurality of three color values has attained said gamut limit (Mahy teaches and suggests that a color gamut is completely determined if its boundaries in color space are known, and the color space is 3-dimensional, and as a result the boundaries will be 2-dimensional, col 12, lines 19-32); and automatically reducing said three-dimensional order, thereby providing improved control for colors that are located

external to said gamut (Mahy teaches and suggests that a color gamut is completely determined if its boundaries in color space are known, and the color space is 3-dimensional, and as a result the boundaries will be 2-dimensional, col 6, lines 44-48 & col 12, lines 19-32).

Holub teaches that dynamically determining utilizing a color sensor (Figs. 3A & 3B, col 11, lines 66-67 & col 12, lines 1-19, and col 15, lines 42-67 & col 16, lines 1-24).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Shimizu to include transforming said three-dimensional order, in response to dynamically determining which color value among said plurality of three color values has attained said gamut limit; and automatically reducing said three-dimensional order, thereby providing improved control for colors that are located external to said gamut taught by Mahy because it helps to determine the exact boundaries of the color gamut per lightness level from a set of discrete points (col 4, lines 17-43). And then to combine Shimizu and Mahy with Holub to include the concept of dynamically determining utilizing a color sensor taught by Holub to improve communication, control and quality of color reproduction (col 3, lines 3-15). Therefore, as a result of combining Shimizu and Mahy with Holub, a predictable success of controlling out-of-gamut memory and index color can be achieved.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Kau whose telephone number is 571-270-1120 and fax number is 571-270-2120. The examiner can normally be reached on M-F, 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Poon can be reached on 571-272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Kau
Patent Examiner
Division: 2625
September 13, 2007

KING Y. POON
SUPERVISORY PATENT EXAMINER